

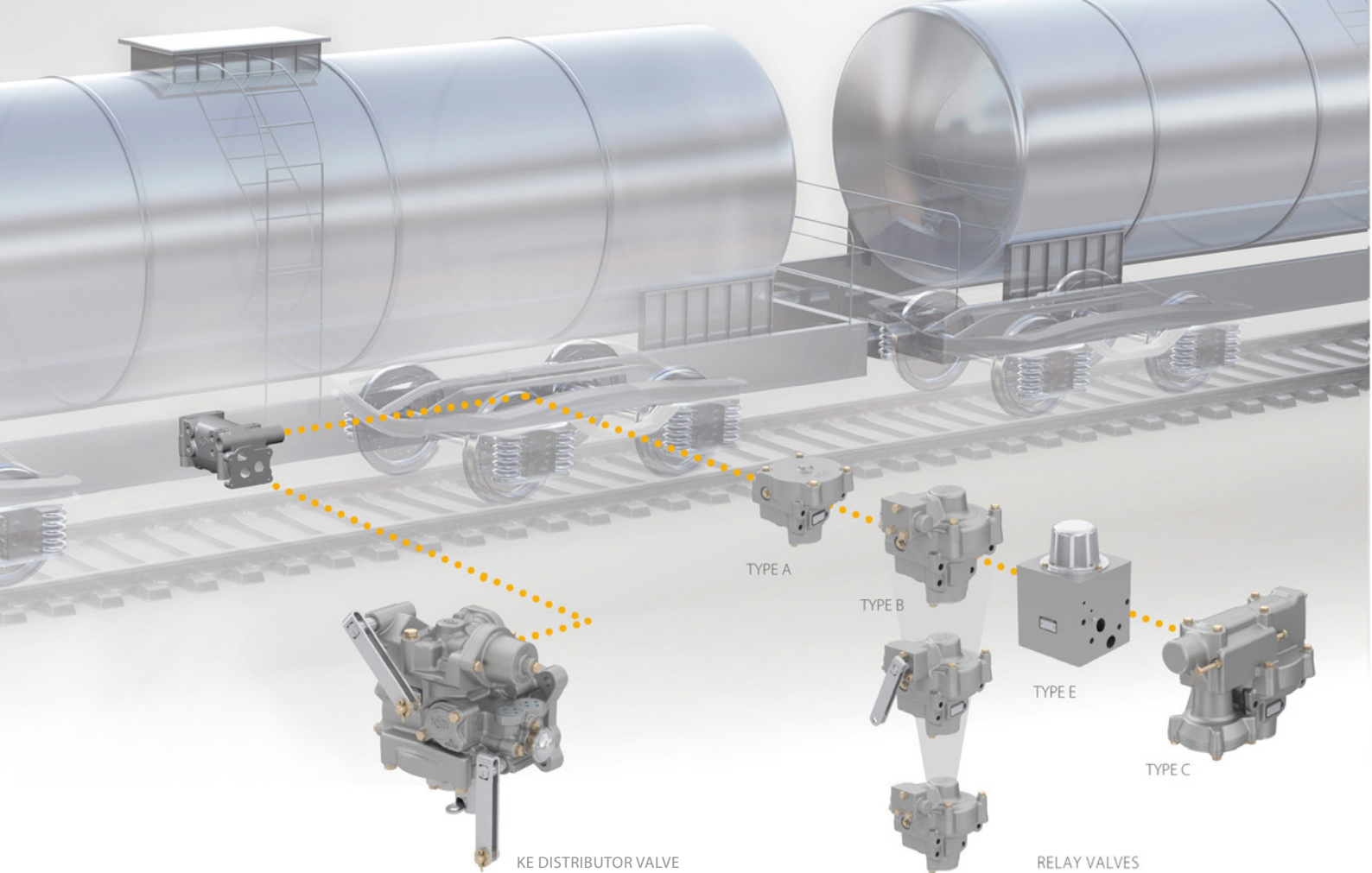
# DISTRIBUTOR VALVES

## APPLICATIONS

Freight Cars | Locomotives | Passenger Coaches | Multiple Units



**KNORR-BREMSE**



## New generation distributor valve KE for UIC market

When the first KE Classic valve entered service in 1953, its engineers had written a new chapter in railroad history. The KE Classic was the first distributor valve capable of always filling the brake cylinder within the prescribed time, regardless of size and piston stroke. It replaced high-maintenance mechanical slide valves by reliable rubber membranes and seat valves. Furthermore, the entire design was based on a modular principle.

After over six decades in operation, the KE distributor valve kit was re-engineered from the ground up. The new generation offers a high level of standardization which enables a lean spare part and stock management. It is complemented by newly developed relay valves featuring single stage, two-stage and load-dependent types.

Again, a new standard has been set: solid sand-cast designs have been replaced by state-of-the-art hot-pressed aluminum parts, resulting in significantly reduced installation space and weight.

The standard version now fits vehicles with limited installation space – such as low-floor cars – without any special modifications. And the ready-for-future tag is no advertising gimmick – the valves have been designed to be ready for the digitalization of freight cars.

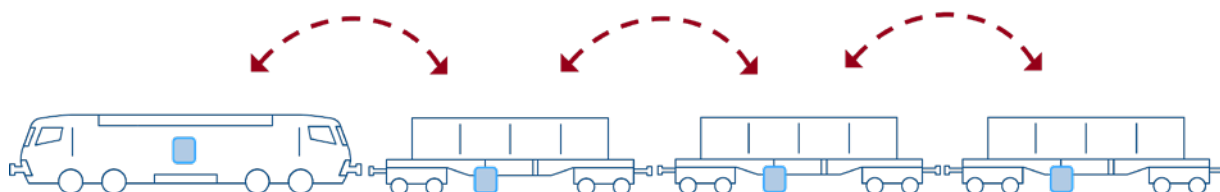
Universal common parts strategy lies at the heart of this approach. The requirements of a wide range of vehicle types can be met flexibly with just one distributor valve and a handful of relay valve variants.

Furthermore extensive endurance testing was conducted to preserve at least the same or even higher mission reliability and long overhaul intervals of the existing generation. All wear parts of the new KEf have been designed for best-in-class durability. When a valve needs to be overhauled, the bracket simply remains on the car. The lightweight valves are easily detachable from the bracket.

## Customer Benefits:

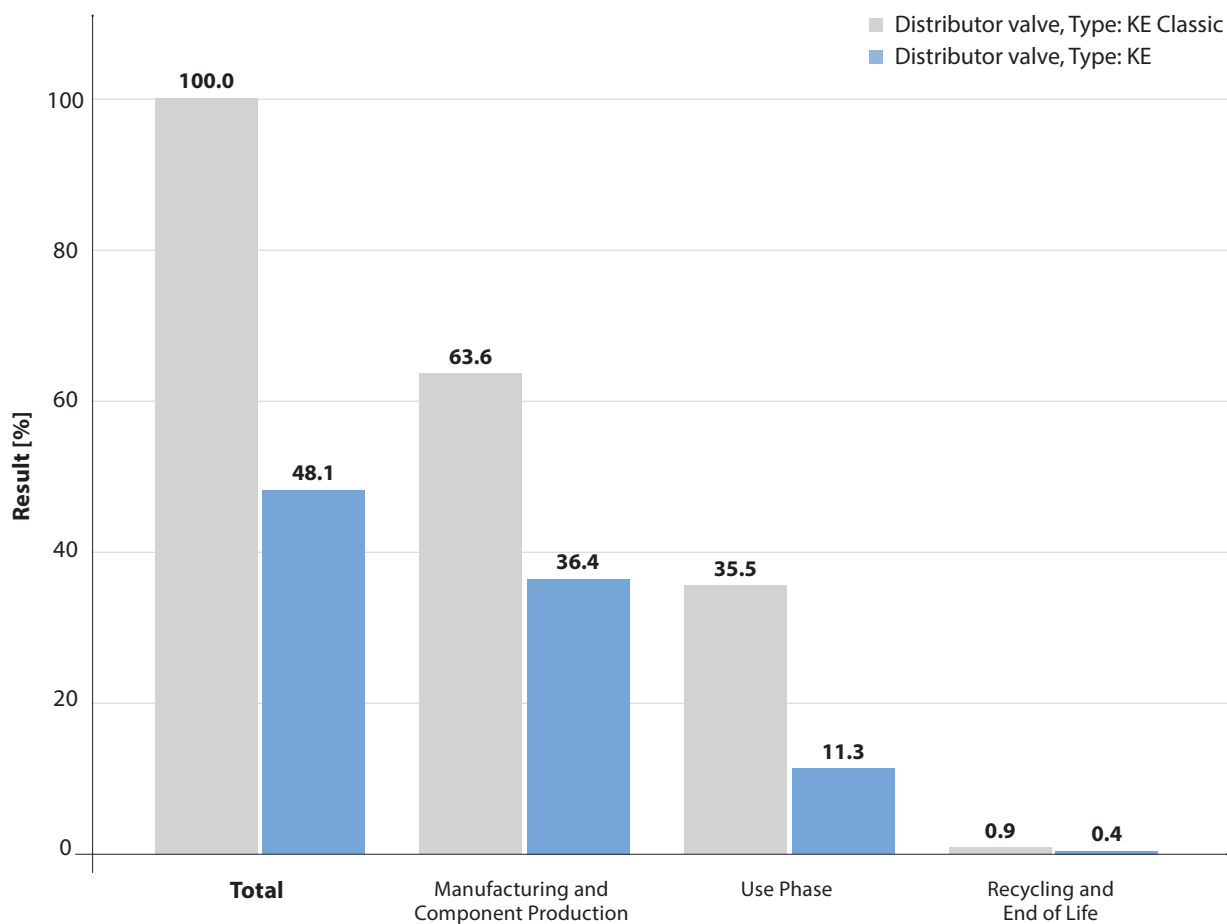
- Overall weight reduction up to 30%, reduced installation space up to 50% (complete unit of bracket, distributor and relay valve)
- Valve portions lighter by up to 75% and more compact by up to 55%
- Long overhaul intervals, best-in-class durability of all wear parts, even better mission reliability compared to existing generation
- Pilot volumes of distributor and relay valve now integrated in bracket
- No valve modification required for low floor cars anymore
- Maintenance free, easy overhaul in long intervals

## Designed to be ready for Digitalization



## Life-Cycle Assessment – focus Product Carbon Footprint

**Distributor valve, Type: KE saves 52% CO<sub>2</sub>-emissions during its lifetime**  
compared to the KE Classic distributor valve, Type: KE0dvKSL



**Main features:****KE – for UIC market**

- Distributor valve KE in conjunction with related relay valve family covers as valve kit all UIC market requirements
- Graduated application and release
- Certified according to UIC and TSI regulations and based on the proven design principles
- Seamless integration into various car types due to kit design
- Interchangeable with all UIC approved distributor valves
- Indirect EP brake possible
- Covers all existing KE Classic distributor valve variants
- Improved spare parts & stock management by high level of standardization
- Reduced installation space and weight
- Standardized car interface
- Working temperature -40 °C to +70 °C (low- temperature version for -50 °C available)

**KE – for Multiple Units**

- Dedicated variant for integration in EMU/DMU brake systems
- Graduated application and release
- Distributor valve with full EN15355 functionality
- Certified according TSI
- Optimized for EP systems
- Over 90% common parts with standard KE distributor valve, but smaller dimensions for easier integration
- Working temperature -40 °C to +70 °C

**KE Classic – for UIC**

- Former standard valve generation KE dv
- Proven in service around the world
- superseded by new valve kit KE for UIC market (as above)
- KE Classic stays available, in particular for spare part service as well as for specific variants
- Working temperature -40 °C to +70 °C (low- temperature version for -50 °C available)

**DB60 – for AAR freight market**

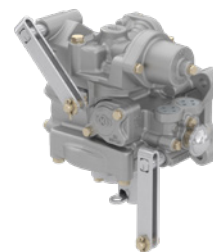
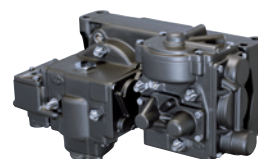
- Standard valve for AAR freight trains
- Graduated application and direct release
- Designed for accelerated service brake signal transmission
- Improved control of long and heavy trains
- Separation of service and emergency brake portions
- Interchangeable with all AAR approved distributor valves
- Working temperature -40 °C to +66 °C

**EP60 – for AAR freight market**

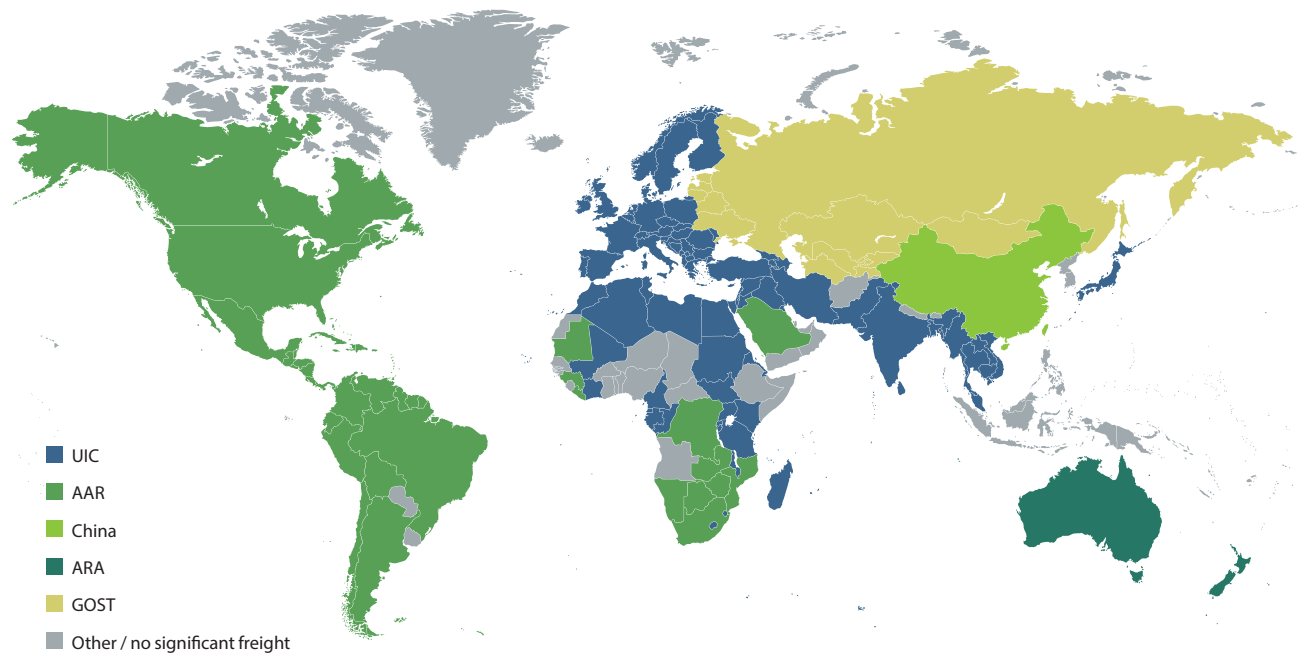
- Electronically controlled pneumatic (ECP) brake system
- Graduated application and release
- Meets AAR performance and interoperability specifications per S-4200
- Simultaneous signal transmission through the train
- Load-compensated braking at each wagon
- Online diagnostics at each wagon
- Improved handling of long, heavy trains, providing shorter stopping distances and saving energy
- Working temperature -40 °C to +66 °C

**WF5 – for ARA freight market**

- Graduated application and direct release
- Designed for operation on longer freight trains
- High brake signal propagation rates resulting in reduced stopping distances and in-train forces
- Working temperature -10 °C to +70 °C

*KE valve**KE for MU**DB60 valve**EP60 valve**WF5 valve*

# Distributor valves for global applications



Valve technology that can address the needs of the world's trains. Being able to serve a global market means delivering products to meet very specific and often demanding requirements – for example a valve with the ability to operate in extreme environmental and climatic conditions such as temperatures down to -50°C!

At the heart of pneumatic brakes is the distributor valve, reacting precisely to changes in brake pipe pressure. Modern valves are sophisticated pieces of technology, providing load-dependent braking for various specific brake types. Millions of these valves are in daily use all over the world, but they are not a “universal” product: various regions have different standards that have been established over the years and are not compatible with one another. All distributor valves have in common long overhaul intervals and low life-cycle costs and are characterized by their robust and reliable design.

The Knorr-Bremse KE distributor valve for example is extremely popular in the core European and Asian UIC market and having proved itself in operation, the valve has now become synonymous with absolute reliability. In American and African markets, the DB60 distributor valve is the standard valve which uses AAR technology, and the Australian railways system ARA operates with Knorr-Bremse W-series valves, employed for trains carrying heavy ore.

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 **KNORR-BREMSE**

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 **NEW YORK AIR BRAKE**

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 **IFE**

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 **MERAK**

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 **MICROELETTRICA**

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 **SELECTRON**

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 **KIEPE ELECTRIC**

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 **EVAC**

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 **ZELSKO**

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 **RAILSERVICES**